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1	US 20070230608 A1	20071004	18	Method and apparatus for quasi maximum likelihood MIMO detection	375/267
2	US 20070177697 A1	20070802	9	Combined channel coding and space-block coding in a multi-antenna arrangement	375/347
3	US 20070160116 A1	20070712	24	Communication device with smart antenna using a quality-indication signal	375/141
4	US 20070147533 A1	20070628	13	Method and system for aggregate channel estimation for frequency-selective transmit beamforming	375/267
5	US 20070140374 A1	20070621	48	SPATIO-TEMPORAL PROCESSING FOR COMMUNICATION	375/267
6	US 20070127588 A1	20070607	24	METHOD AND APPARATUS FOR CHANNEL AND NOISE ESTIMATION	375/267
7	US 20070110137 A1	20070517	35	Iterative interference canceller for wireless multiple-access systems employing closed loop transmit diversity	375/148
8	US 20070098099 A1	20070503	13	PRECODING FOR SEGMENT SENSITIVE SCHEDULING IN WIRELESS COMMUNICATION SYSTEMS	375/260
9	US 20070098094 A1	20070503	16	Peak-to-Average Power Ratio Reduction with Threshold Limited Selection for Coded OFDM Systems	375/260
10	US 20070064773 A1	20070322	13	Multi-carrier spread spectrum using non-linear modification of sub-carrier bands	375/147
11	US 20070019754 A1	20070125	48	SPATIO-TEMPORAL PROCESSING FOR COMMUNICATION	375/260
12	US 20060280257 A1	20061214	17	Method and apparatus for generating weights for transmit diversity in wireless communication	375/267
13	US 20060269006 A1	20061130	19	Wireless communication apparatus and wireless communication method	375/260
14	US 20060251156 A1	20061109	25	Method and apparatus for impairment correlation estimation in a wireless communication receiver	375/148
15	US 20060193373 A1	20060831	184	HIGHLY BANDWIDTH-EFFICIENT COMMUNICATIONS	375/141
16	US 20060176973 A1	20060810	148	Vertical adaptive antenna array for a discrete multitone spread spectrum communications system	375/267

	Inventor
1	Li; Guangjie
2	Calderbank; Arthur Robert et al.
3	Harel; Haim et al.
4	Thomas; Timothy A. et al.
5	Raleigh; Gregory G. et al.
6	Kim; Byoung-Hoon
7	Guess; Tommy et al.
8	Gore; Dhananjay Ashok et al.
9	Yue; Guosen et al.
10	Farhang-Boroujeny; Behrouz et al.
11	Raleigh; Gregory G. et al.
12	Kim; Byoung-Hoon
13	Kuroda; Shinichi
14	Grant; Stephen J. et al.
15	Agee; Brian G. et al.
16	Alamouti; Siavash et al.

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17	US 20060126753 A1	20060615	14	Apparatus and method for detecting space-time multi-user signal of base station having array antenna	375/267
18	US 20060072682 A1	20060406	25	Method and system for pre-equalization in a single weight (SW) single channel (SC) multiple-input multiple-output (MIMO) system	375/267
19	US 20060039494 A1	20060223	17	Apparatus and method for beamforming in a multi-antenna system	375/267
20	US 20060013327 A1	20060119	24	Apparatus for antenna diversity using joint maximal ratio combining	375/260
21	US 20050249304 A1	20051110	24	Wireless communication system, wireless communication apparatus, wireless communication method, and computer program therefor	375/267
22	US 20050213682 A1	20050929	21	Apparatus and method for transmitting and receiving data in a mobile communication system using an array antenna	375/267
23	US 20050195915 A1	20050908	50	Spatio-temporal processing for communication	375/267
24	US 20050157810 A1	20050721	52	Spatio-temporal processing for communication	375/267
25	US 20050147183 A1	20050707	15	Method for updating singular value decomposition of a transfer matrix	375/299
26	US 20050111598 A1	20050526	53	Spatio-temporal joint searcher and channel estimators	375/347
27	US 20050111566 A1	20050526	16	Wireless communication apparatus and method for multiple transmit and receive antenna system using multiple codes	375/267
28	US 20050094603 A1	20050505	15	Signal processing apparatus and method using multi-output mobile communication system	370/334
29	US 20050078763 A1	20050414	17	Apparatus and method of multiple antenna transmitter beamforming of high data rate wideband packetized wireless communication signals	375/267
30	US 20050074071 A1	20050407	9	Method and apparatus for diversity combining and co-channel interference suppression	375/267
31	US 20050047517 A1	20050303	38	Adaptive modulation for multi-antenna transmissions with partial channel knowledge	375/267

	Inventor
17	Jwa; Hye-Kyung et al.
18	Kent; Mark et al.
19	Kim; Ho-Jin et al.
20	Sugar; Gary L. et al.
21	Takano, Hiroaki et al.
22	Han, Jin-Kyu et al.
23	Raleigh, Gregory G. et al.
24	Raleigh, Gregory G. et al.
25	Willink, Tricia J.
26	Felter, Stefan
27	Park, Chang-Soon et al.
28	Kim, Bong Hoe et al.
29	Choi, Won-Joon et al.
30	Papathanasiou, Apostolos et al.
31	Georgios, Giannakis B. et al.

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32	US 20040228422 A1	20041118	25	Digital convertible radio SNR optimization	375/299
33	US 20040184570 A1	20040923	11	Method and apparatus for reducing interference within a communication system	375/346
34	US 20040141548 A1	20040722	31	Software adaptable high performance multicarrier transmission protocol	375/146
35	US 20040071222 A1	20040415	23	Wireless communication apparatus and method	375/267
36	US 20040001556 A1	20040101	14	System implementing closed loop transmit diversity and method thereof	375/267
37	US 20030072382 A1	20030417	56	Spatio-temporal processing for communication	375/267
38	US 20030031234 A1	20030213	38	System and method for received signal prediction in wireless communications systems	375/147
39	US 20030026348 A1	20030206	23	Wireless communication apparatus and method	375/267
40	US 20030002594 A1	20030102	27	Communication device with smart antenna using a quality-indication signal	375/299
41	US 20020181627 A1	20021205	15	Diversity gain with a compact antenna	375/347
42	US 20020172269 A1	20021121	13	METHOD AND SYSTEM FOR EFFECTIVE CHANNEL ESTIMATION IN A TELECOMMUNICATION SYSTEM	375/211
43	US 20020150182 A1	20021017	17	Spatial processing and timing estimation using a training sequence in a radio communications system	375/343
44	US 7248638 B1	20070724	18	Transmit antenna multi-mode tracking	375/267
45	US 7236538 B1	20070626	28	Method and apparatus for improving transmit antenna weight tracking using channel correlations in a wireless communication system	375/267
46	US 7203249 B2	20070410	51	Spatio-temporal processing for communication	375/299
47	US 7180956 B1	20070220	28	Method and apparatus for applying overlaid perturbation vectors for gradient feedback transmit antenna array adaptation	375/267
48	US 7177363 B2	20070213	15	Signal processing system and method	375/260
49	US 7167526 B2	20070123	23	Wireless communication apparatus and method	375/267

	Inventor
32	Silveira, Marthinus W. da et al.
33	Thomas, Timothy A. et al.
34	Shattil, Steve J.
35	Liang, Ying-Chang et al.
36	Harrison, Robert Mark et al.
37	Raleigh, Gregory G. et al.
38	Smee, John Edward et al.
39	Llang, Ying-Chang et al.
40	Harel, Haim et al.
41	Wengler, Michael J.
42	Xu, Guanghan
43	Dogan, Mithat C. et al.
44	Banister; Brian C.
45	Banister; Brian C.
46	Raleigh; Gregory G. et al.
47	Banister; Brian C.
48	Fletcher; Paul et al.
49	Liang; Ying-Chang et al.

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50	US 7164739 B1	20070116	13	Broadcast burst with repeated weights for a radio communications system	375/347
51	US 7164726 B1	20070116	13	Broadcast burst using spatial diversity for a radio communications system	375/267
52	US 7164725 B2	20070116	18	Method and apparatus for antenna array beamforming	375/267
53	US 7162210 B2	20070109	16	Method and device of antenna pattern forming	455/101
54	US 7151803 B1	20061219	10	Multiuser allocation method for maximizing transmission capacity	375/260
55	US 7145971 B2	20061205	53	Spatio-temporal processing for communication	375/347
56	US 7110462 B2	20060919	14	Multiple access system and method for multibeam digital radio systems	375/260
57	US RE39275 E	20060912	13	Hardware-efficient demodulator for CDMA adaptive antenna array systems	342/378
58	US 7095814 B2	20060822	24	Apparatus and method for very high performance space-time array reception processing using chip-level beamforming and fading rate adaptation	375/347
59	US 7072410 B1	20060704	16	Multiple access system and method for multibeam digital radio systems	375/260
60	US 7061969 B2	20060613	145	Vertical adaptive antenna array for a discrete multitone spread spectrum communication system	375/147
61	US 7058145 B2	20060606	15	Diversity gain with a compact antenna	375/347
62	US 7031679 B2	20060418	14	Estimating power on spatial channels	455/137
63	US 7010055 B2	20060307	13	System implementing closed loop transmit diversity and method thereof	375/267
64	US 6990137 B2	20060124	36	System and method for received signal prediction in wireless communications systems	375/142
65	US 6952455 B1	20051004	21	Adaptive antenna method and apparatus	375/267
66	US 6934323 B2	20050823	21	Adaptive array antenna-based CDMA receiver that can find the weight vectors with a reduced amount of calculations	375/152
67	US 6927728 B2	20050809	14	Method and apparatus for multi-antenna transmission	342/377

	Inventor
50	Trott; Mitchell D.
51	Trott; Mitchell D.
52	Frank; Colin D.
53	Garmonov; Alexandr V. et al.
54	Sonalkar; Ranjan V.
55	Raleigh; Gregory G. et al.
56	Monsen; Peter
57	Chang; Kyung Hi et al.
58	Kyeong; Mun Geon et al.
59	Monsen; Peter
60	Alamouti; Siavash et al.
61	Wengler; Michael J.
62	Persson; Johan L. et al.
63	Harrison; Robert Mark et al.
64	Smee; John Edward et al.
65	Banister; Brian
66	Hara; Yoshitaka
67	Vook; Frederick W. et al.

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68	US 6920192 B1	20050719	13	Adaptive antenna array methods and apparatus for use in a multi-access wireless communication system	375/347
69	US 6888899 B2	20050503	49	Spatio-temporal processing for communication	375/299
70	US 6888809 B1	20050503	9	Space-time processing for multiple-input, multiple-output, wireless systems	370/334
71	US 6865377 B1	20050308	10	Combined open and closed loop beam forming in a multiple array radio communication system	455/101
72	US 6853629 B2	20050208	35	Method for frequency division duplex communications	370/330
73	US 6834076 B2	20041221	12	Method and system for estimation and prediction of channel characteristics in mobile communications	375/211
74	US 6834043 B1	20041221	26	Method and device for exploiting transmit diversity in time varying wireless communication systems	370/310
75	US 6826240 B1	20041130	29	Method and device for multi-user channel estimation	375/340
76	US 6801589 B1	20041005	20	Relative timing acquisition for a radio communications system	375/343
77	US 6782039 B2	20040824	146	Vertical adaptive antenna array for a discrete multitone spread spectrum communications system	375/147
78	US 6650881 B1	20031118	20	Calculating spatial weights in a radio communications system	455/276.1
79	US 6650714 B2	20031118	16	Spatial processing and timing estimation using a training sequence in a radio communications system	375/343
80	US 6584144 B2	20030624	143	Vertical adaptive antenna array for a discrete multitone spread spectrum communications system	375/147
81	US 6477161 B1	20021105	14	Downlink beamforming approach for frequency division duplex cellular systems	370/342
82	US 6452981 B1	20020917	51	Spatio-temporal processing for interference handling	375/299
83	US 6400780 B1	20020604	9	Space-time diversity for wireless systems	375/347

	Inventor
68	Laroia; Rajiv et al.
69	Raleigh; Gregory G. et al.
70	Foschini; Gerard Joseph et al.
71	Lindskog; Erik D. et al.
72	Alamouti; Siavash et al.
73	Xu; Guanghan
74	Vook; Frederick W. et al.
75	Thomas; Timothy A. et al.
76	Dogan; Mithat C.
77	Alamouti; Siavash et al.
78	Dogan; Mithat C.
79	Dogan; Mithat C. et al.
80	Alamouti; Siavash et al.
81	Hudson; John Edward et al.
82	Raleigh; Gregory G. et al.
83	Rashid-Farrokh; Farrokh et al.

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84	US 6377631 B1	20020423	49	Transmitter incorporating spatio-temporal processing	375/299
85	US 6335954 B1	20020101	24	Method and apparatus for joint synchronization of multiple receive channels	375/354
86	US 6249251 B1	20010619	11	Hardware-efficient demodulator for CDMA adaptive antenna array systems	342/378
87	US 6144711 A	20001107	50	Spatio-temporal processing for communication	375/347
88	US 5930243 A	19990727	20	Method and apparatus for estimating parameters of a communication system using antenna arrays and spatial processing	370/334
89	US 5887038 A	19990323	6	Adaptive antenna array processing arrangement using a combined coherent and constant-modulus reference signal	375/347
90	US 5870430 A	19990209	14	Process for multi-sensor equalisation in a radio receiver in the presence of interference and multiple propagation paths	375/229
91	US 5831977 A	19981103	18	Subtractive CDMA system with simultaneous subtraction in code space and direction-of-arrival space	370/335
92	US 5260968 A	19931109	22	Method and apparatus for multiplexing communications signals through blind adaptive spatial filtering	375/347

	Inventor
84	Raleigh; Gregory G.
85	Bottomley; Gregory Edward et al.
86	Chang; Kyung Hi et al.
87	Raleigh; Gregory G. et al.
88	Parish; David M. et al.
89	Golden; Glenn David
90	Pipon; Francisco et al.
91	Dent; Paul W.
92	Gardner; William A. et al.